

SODECO

PREDETERMINING IMPULSE COUNTERS

- Combines Counting and Control in Single Unit
- Small, Compact, Panel-Mounted
- Manual or Electric Reset
- 10 or 25 Counts per second

These compact counters are an economical solution to many counting and control problems. These counters will "make" a circuit to activate a control mechanism or signal device at a predetermined number. Applications include production control, coil winders, batch control, vending machines, business machines, production line operations, and many others.



LANDIS & GYR, INC.

45 West 45th Street, New York, N.Y. 10036
Telephone: (212) JUdson 6-4644 TWX: (212) 640-4068

Small panel-mounted predetermining impulse counters

A. Operation

The hinged flap above the counter register is opened, exposing the preselection wheels. The push button on the counter surface is then depressed, and turned until the indicated white line is in an approximately horizontal position. The desired number of counts is set by manually turning each knurled wheel to the proper position, as indicated by the readout register. Rotating the push button until the white line is vertical will return the button to its original position. The unit is now ready to begin counting.

With each pulse the counter register decreases one unit. Energizing the counting coil advances the counter half way to the next figure. When the coil is de-energized, the count is completed by spring return of counter escapement. At the point 0000 the single-pole double-throw contact reverses. Thus, at a predetermined point, a drive may be shut down, an alarm or indicating light energized, or a machine or flow of production units or material automatically controlled.

Depression of the push button instantaneously returns the counter to the preset figure. In the electric reset model, this reset may also be achieved remotely by energizing the reset coil. The counter contact may be used to initiate an automatic reset cycle.

Automatic repeat or "batch" counting is achieved by counter TCeF4PE and necessary time delay relay wired as under "E. Automatic Reset Diagram".

In those applications where a warning or slow down signal is desired, the TCeF4PE may be supplied in a form in which the single-pole double-throw contact reverses either 50, 100, 200 or 500 counts before the preselected count. Immediately after the warning point is passed, the contact returns to its initial position until the predetermined count is reached, at which point it reverses again.

B. Construction

The counters are designed for flush panel-mounting by means of mounting holes on the front plate. Numbered solder terminals are available for the electrical connections. The mechanism is enclosed in a protective housing.

The white numerals on black background measure 0.079" wide by 0.157" high and are very legible.

The drive mechanism is made of steel; the number drums and the star wheel are made of hard plastic specially selected for this purpose. High quality precision workmanship and selection of proper materials assure long life and great operating dependability also at the maximum speed of 25 impulses per second.

The two basic types are:

TCeZ4PE with manual reset

TCeF4PE with manual and electric reset

Both types can be furnished for either 10 or 25 impulses per second. The maximum counting speed should be indicated in the order.



C. Operation of the presetting mechanism

The following instructions must be observed for the presetting of a predetermined number:

1. The incoming counting pulses must be interrupted.
2. Depress the push button until it comes to a stop and block it by turning it until the white line is in horizontal position.
3. Open the hinged cover which protects the predetermining drums.
4. Use thumb to turn toothed predetermining wheels one after the other either forward or backward, until the desired number appears on each of the 4 digits.
5. Close the cover and turn the push button until the white line is in its original vertical position.
6. Counting pulses may then be resumed.

The terminals are identified as follows:

- | | |
|---------------|---|
| 1 and 2 | counting coil |
| 3 and 4 | reset coil |
| 5 and 6 and 7 | single-pole double-throw contact. At the beginning of count cycle, terminals 5-6 are closed. When predetermined count is reached, terminals 6-7 are closed. |

D. Predetermining contact

Normal operation

The predetermining contact consists of a single pole double throw switch which is reversed by the pulse which carries the register from 0001 to 0000; approximately 30 ms after the coil is de-energized.

Warning signal

On request the predetermining contact can be applied so as to give a warning signal 50, 100, 200 or 500 counts before the predetermined figure is reached. The contact remains operated until the counter advances another unit. The closure time of the contact is approx. 8-15 ms at 25 i.p.s. As soon as the predetermined number has been reached, i.e. when the counter reads zero, the contact reverses again. If further impulses are received on the counting coil, the contact returns to its initial position.

This model is always supplied with electrical reset to the predetermined figure. A set of relays can be used to separate the warning signal from the predetermining signal. A diagram of connections of this circuit is available on request. Example of type designation: TCeF4P500E stands for a predetermining counter with electric reset and warning signal 500 impulses before position 0000.

Special models

Special models can be furnished in which the double-throw contact is operated at a number other than 0000. In addition, the contact may be operated either when the armature is closed or when it is released. The type designations are thereby modified as follows:

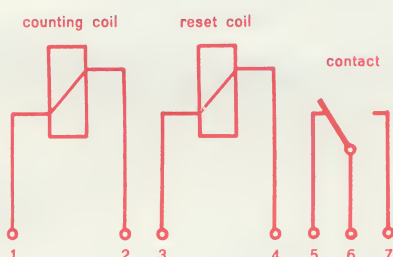
Suffix **v** is used when the contact must take place at armature closure, and suffix **n** when the contact must operate at armature release, supplemented by the number at which contact operation is to take place.

Examples :

TCeF4PEv Predetermining counter with electric reset and contact operation at armature attraction, while the register moves from 0001 to 0000.

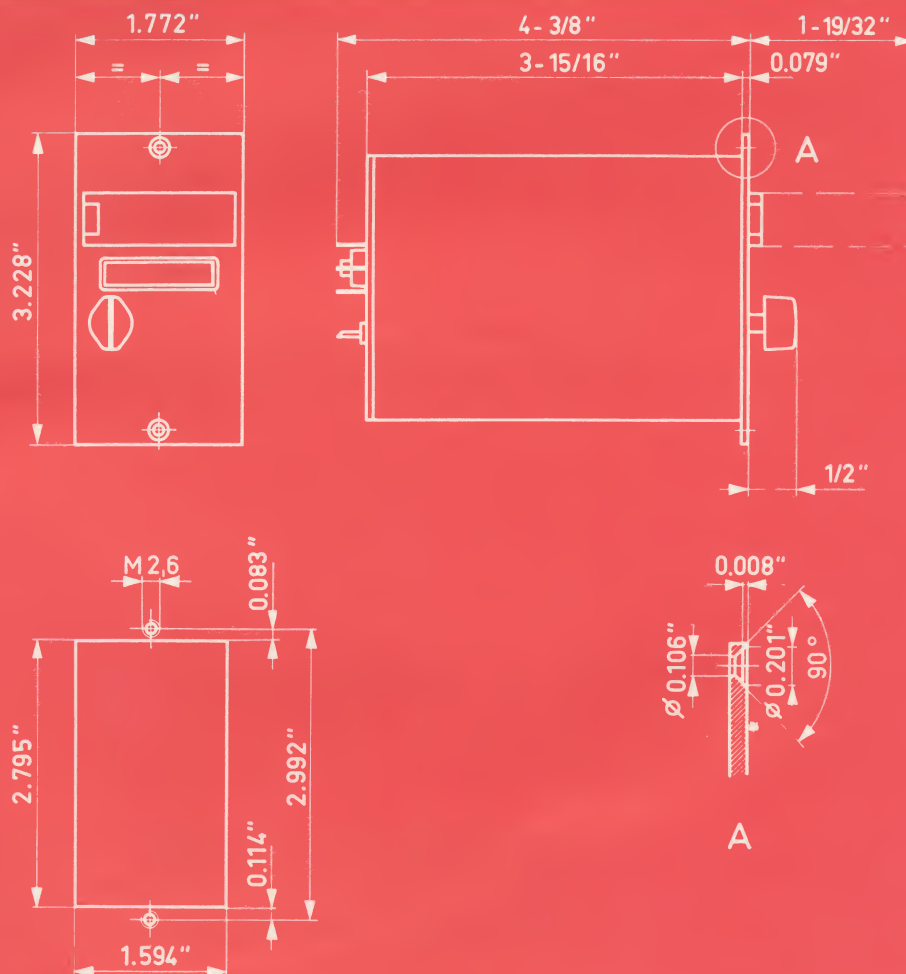
TCeZ4PE9999n Predetermining counter with manual reset and contact operation at release of armature when position 9999 is reached.

E. Identification of the terminals



- 1 and 2 counting coil
3 and 4 reset coil
5 and 6 and 7 single-pole double-throw contact. At the beginning of count cycle, terminals 5-6 are closed. When predetermined count is reached, terminals 6-7 are closed.

F. Dimensions



Panel cut out for flush mounting

G. Operating instructions

Voltage	The working voltage is measured at the coil with continuous impulse. For satisfactory operation this voltage should not differ by more than $\pm 15\%$ from the nominal value.
Resistance	The ohmic resistance of the coils is indicated under «H. Electrical data». The factory tolerances are $\pm 10\%$.
Counting impulses	Minimum limits for impulse duration and impulse interval are as follows: For counters up to 10 impulses per second For counters up to 25 impulses per second impulse duration = min. 40 ms impulse duration = min. 20 ms impulse interval = min. 40 ms impulse interval = min. 20 ms Recommended spark suppression for transmitter contact consists of a resistance connected in series with a capacitor. For maximum impulse duration and spark suppression data see paragraph H Electrical Data.
Reset	Duration of impulse min. 180 ms duration of reset cycle : duration of impulse + 140 ms The counting coil must not be actuated during the reset cycle. The reset coil may be specified with a different voltage from that of the counting coil ; it may not be energized permanently.
Mounting Position	The counters are adjusted to operate with the front plate vertical. Other positions should be specified when ordering.
Test voltages	After assembly each coil is submitted to an insulation test. The test voltage is 2000 V A.C. during one minute.
Predetermining contacts	Maximum ratings : A.C. up to 250 V, 1 Amp. D.C. up to 250 V, 0.1 Amp. In the case of inductive loads, it is essential to provide the contact with a spark suppressor.
Life expectancy	Count life at least 50 million impulses. Reset life at least 1 million resets.
Auxiliary contacts	These counter types cannot be equipped with auxiliary contacts.
Weight	Type TCeZ4PE = 12½ oz. Type TCeF4PE = 22½ oz.

H. Electrical data

Counters up to 10 impulses per second for D.C.

Standard voltages	V	6	12	24	36	48	60	110	220
Resistance	Ohms	9	35	130	350	500	1000	3200	13000
Operating current	mA	666	343	185	103	96	60	34	17
Power consumption	W	4	4.1	4.4	3.7	4.6	3.6	3.8	3.7
Recommended spark suppressor	R: Ohm	35-45	35-100	120-250	350-550	450-750	600-1200	2000-3500	10000-15000
	c: μ F	0.8-1.5	0.8-1.5	0.8-1.5	0.4-0.7	0.4-0.7	0.4-0.7	0.15-0.3	0.04-0.08
Duty cycle	These coils may be energized continuously								

Counters up to 25 impulses per second for D.C.

Standard voltages	V	6	12	24	36	48	60	110	220
Resistance	Ohms	3.6	12	60	130	200	350	1000	4500
Operating current	mA	1666	1000	400	277	240	172	110	49
Power consumption	W	10	12	9.6	10	11.5	10.3	12.1	10.8
Recommended spark suppressor	R: Ohm	4-6	8-12	35-110	150-250	200-300	250-500	450-1100	3000-5000
	c: μ F	4-6	3.5-4	1-1.7	1-1.7	1-1.7	0.6-1.2	0.4-0.6	0.07-0.12
Duty cycle	50% on, 50% off, for pulse durations up to 1 minute: max. 2 minutes on, min. 3 minutes off								

Reset coils

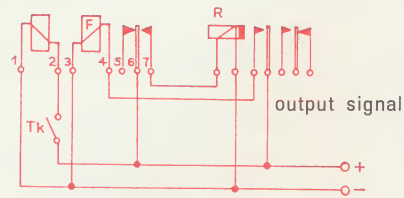
Standard voltages	V	6	12	24	36	48	60	110	220
Resistance	Ohms	5	21	75	170	330	500	1600	4800
Operating current	mA	1200	570	320	212	145	120	70	46
Power consumption	W	7.2	6.8	7.7	7.6	7.0	7.2	7.6	10.1
Duty cycle	max. 10 minutes on, min. 15 minutes off (or proportionately)								

I. Spark suppression



K. Automatic reset diagrams

TCeF4PE
D.C. Operation



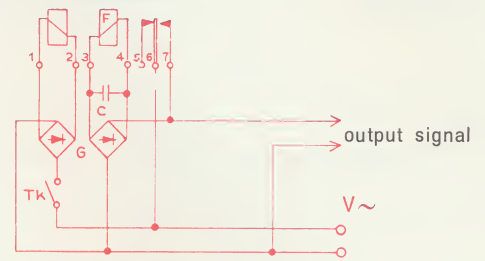
max : 3 imp./sec.

R : Relay with Delay on Release
of about 150 ms

Tk : Impulse Transmitter

F : Reset Coil

TCeF4PE A.C. Operation



max : 3 imp./sec.

G : Rectifier

C: according to voltage

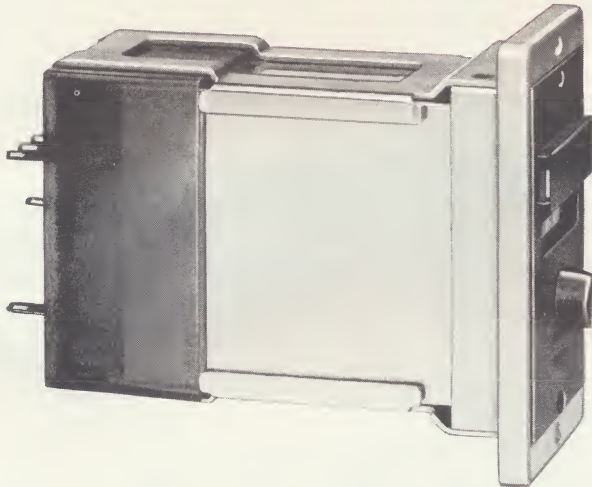
Tk : Impulse Transmitter

F : Reset Coil

For higher counting speeds two predetermining counters operating alternately should be used.

Detailed diagrams are available on request.

L. Plug-in connection assembly



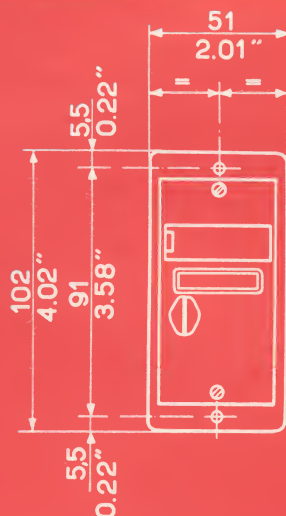
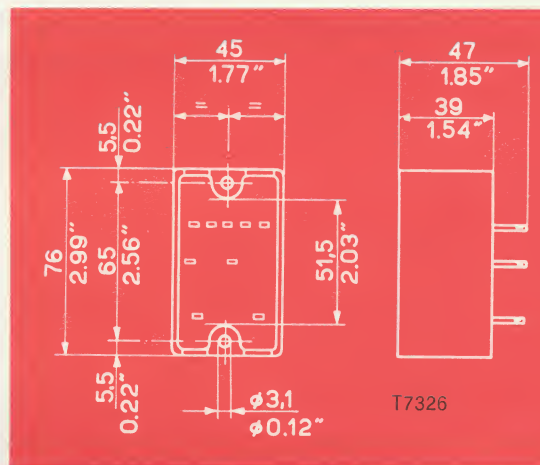
Stock No.

Receptacle

T7326

Receptacle with frame

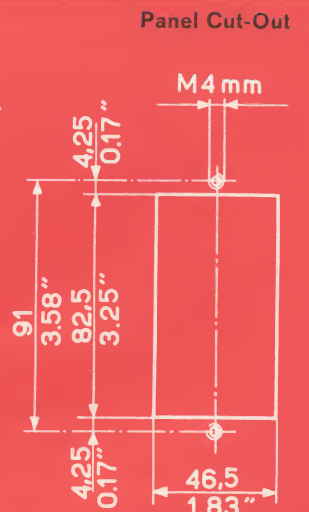
T7327



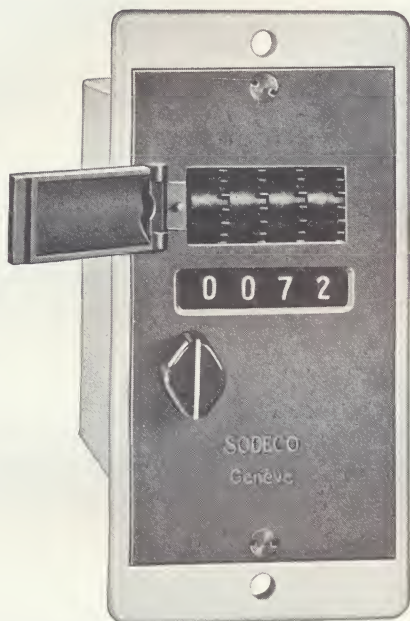
Technical drawing of the front view of the 1000 Series Single-Door Cabinet. The drawing shows a cabinet with a main body and a door. Dimensions are provided in millimeters and inches.

Dimension	Value (mm)	Value (inches)
Main Body Height	82	3.23"
Door Height	79	3.11"
Main Body Width	127	5.00"
Door Width	112	4.41"
Door Thickness	7	0.28"

TCeF(Z)4PE Counter with T7327



Model for A.C. operation, Type 2TCeF4PE



This predetermining counter is basically equivalent to the TCeF4PE type. However the supply is taken directly from the mains (110 or 220 V A.C.) and it is protected by a sturdy aluminum housing.

Maximum counting speed is 10 i.p.s.

The counting and reset coils are provided with a spark suppressor within the unit.

Completely wired units or component parts (with wiring diagrams) for automatic recycling are available for this model. Write for complete details.

Predetermining counter with totalizer, Type TCeZ4PEv-38

This is a predetermining impulse counter with a totalizing register. The mechanism for the predetermining register and the totalizing register are independent. Each has its own counting coil and manual reset mechanism. This counter is available for 10 or 25 c/sec.



SODECO

LANDIS & GYR, INC.

45 West 45th Street, New York, N.Y. 10036
Telephone: (212) JUdson 6-4644 TWX: (212) 640-4068

LIST PRICES

SODECO

SMALL PANEL - MOUNTED PREDETERMINING IMPULSE COUNTERS

T Y P E	RESET	6, 12, 24, 36, 48, 60, 110, 160, 220 VDC		110 VAC
		10 Imp. Sec.	25 Imp. Sec.	10 Imp. Sec. only
TCeZ4PE	manual	53.00	53.50	not available
TCeF4PE	electric	65.00	65.50	not available
With Warning Signal TCeF4P... E	electric	75.00	75.50	not available
2TCeF4PE	electric	not available	not available	81.00
SUPPLEMENTS:				
Predetermining contact at attraction of armature or other than zero		2.50	2.50	not available
Adding instead of subtracting; contact at 9999		5.75	5.75	not available
Extras for unlisted voltages on request				

SC42 Automatic recycling relay assembly for
counter type 2TCeF4PE

55.00

The above list prices are understood in U.S. Dollars, f.o.b. New York,
and are subject to change without notice

LANDIS & GYR, INC.

45 WEST 45TH STREET
NEW YORK, N. Y. 10036

DISCOUNT SCHEDULE

for

SODECO TCe... series Small, Remote Impulse Counters
SODECO TCeB.. series Small, Remote Impulse Counters
SODECO TCeZ(F)4PE... and 2TCeF4PE series Small Panel-
mounted, Predetermining Impulse Counters
SODECO HTCe... and HTCe..4PE series Time Indicators
SODECO lTD... series Single Decade Impulse Counters
SODECO "Print" Printing Counters for Serial Entry
SODECO "Decaprint" Printing Counters for Parallel and/or
Serial Entry

The following discounts apply on list prices of above SODECO equipment, and pertain to individual orders for the same type, counting speed and voltage:

1	-	4	units	-	list price
5	-	9	"	-	5% discount
10	-	14	"	-	10% "
15	-	19	"	-	15% "
20	-	49	"	-	20% "
50	-	99	"	-	25% "
		100	"	-	30% "

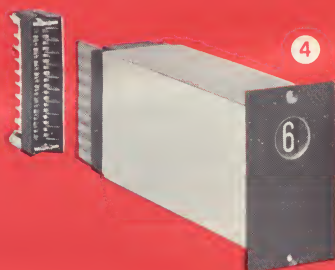
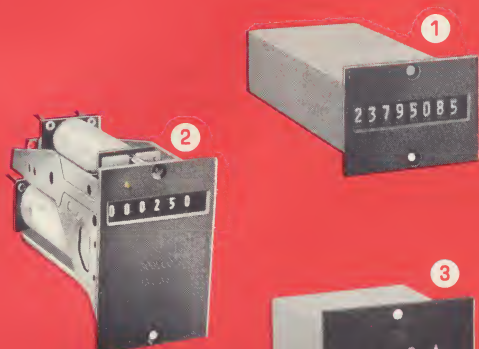
Please inquire about discounts applicable to quantities over 100 units.

All goods are delivered F.O.B. New York, N.Y.

Terms: 1% 10 days, net 30 days

10/1/65

(Subject to change without notice)

SODECO**IMPULSE
COUNTERS****TOTALIZING COUNTERS**

Manual, toggle, reset: 3 to 6 digits

Electric reset: 4 to 6 digits

No reset: 3 to 8 digits

10 or 25 c/sec., 5 and 6 digits also for 50 c/sec.; panel mount, DC operation.

- ① Type TCe7E, no reset, 1.653" x 1.220" x 4.016".
- ② Type TCeF6E, electric reset, 1.653" x 2.363" x 4.016".
Send for Bulletin 212.26.3

Manual, push button, reset, 4 to 6 digits

DC (10 or 25 c/sec.) or AC (10 c/sec. max); panel mount

Also available without reset

- ③ Type TCeBZ5E (DC), 1.654" x 2.047" x 1.811".
Send for Bulletin 212.27.2

MONODECADES

Single digit with electric readout; may be ganged to form multi-digit counter; series or parallel entry; add or subtract; reset by series of impulses; 10 c/sec.; DC.

- ④ Model illustrated 5TD—1.378" x 2.362" x 5.690". Send for Bulletin 212.37.2
- ⑤ Also available Model 1TD with transfer and reset contacts only (no readout contacts). Send for Bulletin 213.23.4

PREDETERMINING COUNTERS

Easy preset; spdt switch after predetermined count.

Manual, push button, or electric reset to preset number; 4 digits, 10 or 25 c/sec., DC (also models for AC); panel mount

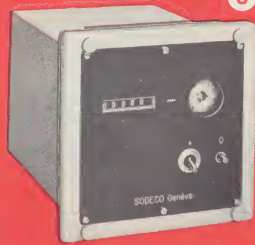
- ⑥ Type TCeF4PE—1.772" x 3.228" x 4.016".
Send for Bulletin 212.24

Predetermining and/or add-subtract, manual or electric reset to preset count; 4 and 5 digits, 10 c/sec., AC or DC, panel or surface mount.

- ⑦ Type TiZ5P1E—5.669" x 5.669" x 2.795".
Send for Bulletin 212.25.2

SODECO

IMPULSE COUNTERS



8

HIGH SPEED COUNTER

Totalizing (6 or 7 digits), or predetermining (5 digits), including electronic stage; 250 c/sec.; built-in power supply and amplifier; panel mount.

- 8 Type SC60.1—5.67" x 5.67" x 8.15".
Send for Bulletin E84b



9

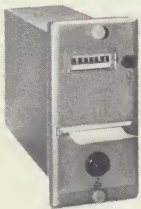
SUMMATOR

Totalization of up to 8 pulse sources, or up to 40 pulse sources with supplementary units. Fully transistorized.

- 9 Type SC58—5.67" x 5.67" x 8.15".
Send for Bulletin E90a

PRINTING COUNTERS

10



Series entry; visual readout and print; 6 digit; 10 c/sec., AC or DC; also models with 12 or more digits. Model illustrated 1Tpb3—2.84" x 5.67" x 7.16".
Send for Bulletin 331

11



Date and Time. Combines 1Tp3 (either DC or AC counting, printing and resetting) and synchronous motor driven (110V AC, 60 cycles) time and date register in single housing; simultaneous print of both channels on single tape. Other models for DC time pulses. 10 c/sec. Model illustrated 1Tpb53—5.67" x 5.67" x 7.16".
Send for Bulletin 331

12



Parallel and/or series entry; visual readout and print; 5 digit (also 1 to 4 digit on special order); any or all decades may be pulsed independently or ganged; 25 c/sec.; DC. Model illustrated 1Tpb7—2.84" x 5.67" x 7.16".
Send for Bulletin E93

13



Parallel and/or series entry; visual readout and print; 10 digit (also 6 to 9 digit on special order); any or all decades may be pulsed independently or ganged; 25 c/sec.; DC; also models with time, or date and time channels, and other multi-channel combinations, up to 20 digits in single housing, printing on single tape. Model illustrated 1Tpb77—5.67" x 5.67" x 7.16".
Send for Bulletin E93 and information on additional combinations.

Detailed information on each of the counters described in this Bulletin is available by sending for the specific Bulletin listed under each counter. As there are many standard units not shown, we welcome the details of your counting applications, in hope that a unit which fills your requirements may be recommended. Also, the Sodeco staff of counting engineers is at your ready assistance to help in solving application problems. Complete service and testing facilities are maintained at 45 W. 45th St., New York 36, N.Y.

LANDIS & GYR, INC.

45 West 45th Street, New York, N. Y. 10036
Telephone (212) JUdson 6-4644 TWX (212) 640-4068